REMARKS

Claims 25-59 are currently pending in the subject application and are presently under consideration. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein.

I.   Rejection of Claims 25-47 Under 35 U.S.C. §101

Claims 25-47 stand rejected under 35 U.S.C. §101. The Examiner contends that these claims do not produce a useful, concrete, and tangible result, and that such claims must explicitly be directed towards a computer-readable medium that is encoded with a computer program. Applicants' representative respectfully avers to the contrary in view of the description of elements within the subject claims in the specification together with relevant case law.

> Because the claimed process [method] applies the Boolean principle to produce a useful, concrete, tangible result ... on its face the claimed process comfortably falls within the scope of §101. *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358. (Fed.Cir. 1999); *See State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed.Cir.1998) (finding a system implementing a financial management structure satisfied §101 because it constituted a practical application of a mathematical algorithm by producing a useful, concrete and tangible result).

As stated in the Reply to the Final Office Action dated November 1, 2004, and reemphasized herein, the subject claims recite an invention that clearly provides a useful, concrete and tangible result. Independent claim 25 recites system components (a personality type generator and an attribute value predictor) that *calculate probabilities* relating to *personality type(s)* and *predict unknown attributes relating to a user based at least in part upon the calculated probabilities*. While not recited in the claims, the specification makes it readily apparent that these system elements are existent and implemented within a computer. (*See* Fig. 1 and accompanying text, indicating that a front end is a client and that a back end is a server), (*See* Fig. 5 and accompanying text, illustrating basic computer components that

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are utilized to effectuate the claimed collaborative filtering system), (*See* pg. 22, lines 4-13, briefly describing an interaction of the claimed personality type generator and attribute value predictor upon a server system), (*See* pg. 23, line 6 – pg. 26, line 27 for a detailed explanation of utilization of the claimed personality type generator and attribute value predictor), (*See* pg. 1, lines 17-25, wherein problems with conventional computer systems are discussed). Given the context provided by the specification, it is clear that the claimed elements are enacted upon a computer, and therefore explicit language to that end in the subject claims is superfluous and unnecessary. Moreover, the Federal Circuit has stated that claims are to be interpreted in light of the specification. (*See Markman v. Westview Instruments,* 52 F.3d 967, 980, 34 USPQ2d 1321, 1330 (*en banc*), *aff'd,* U.S., 116 S. Ct. 1384 (1996), holding that office personnel must rely on applicant's disclosure to properly determine the meaning of the claims), (*See Toro Co. v. White Consolidated Industries Inc.,* 199 F.3d 1295, 1301, 53 USPQ2d 1671, 1674 (Fed. Cir. 1994), stating that meaning of words utilized in a claim are to be construed "in the context of the specification and drawings."). As the specification clearly indicates that the personality type generator and attribute value predictor are existent within a computer (*See* Figs. 1 and 5 and accompanying text), and such elements are functionally related with one another, it is readily apparent that the claims are directed towards statutory subject matter.

With respect to the Examiner's contention that the subject claims do not produce a useful, concrete, and tangible result, it is clear that the claimed collaborative filtering system comprises a personality type generator and an attribute value predictor, which are functionally related and in conjunction enable predictions of unknown attributes to be generated. Thus, claim 25 recites independent acts (analyzing and calculating) that are performed on non-abstract ideas (known attributes and probabilities) to produce useful, concrete, and tangible results (predictions of unknown attributes). The specification provides several examples that clearly illustrate the usefulness of the claimed collaborative filtering system that enables the aforementioned prediction of unknown attributes. Many of such examples were provided in previous correspondence, and for the sake of brevity are not repeated herein.

In view of at least the above, it is readily apparent that the claimed invention produces a useful, concrete, tangible result (*e.g.,* prediction(s) of unknown attributes)

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pursuant to *AT&T Corp. v. Excel Communications, Inc.* Accordingly, this rejection should be withdrawn.

II.   Rejection of Claims 25-26, 28, 30-34, 36-40, 44-55, and 57-59 Under 35 U.S.C. §102(b)

Claims 25-26, 28, 30-34, 36-40, 44-55, and 57-59 stand rejected under 35 U.S.C. §102(b) as being anticipated by Robinson (US 5,884,282). Withdrawal of this rejection is respectfully requested for at least the following reason. As stated in the Reply to the Final Office Action, and reiterated herein, Robinson does not disclose each and every element of applicants' invention as claimed.

> For a prior art reference to anticipate, 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (*quoting Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

In particular, Robinson does not disclose, teach, or suggest *calculating probabilities that a user has a personality type substantially similar to personality types of a plurality of disparate users* as recited in independent claims 25 and 48. Specifically, Robinson is silent with regards to a *personality type* as recited in these claims and defined in the specification, wherein a determined *personality type* is utilized for *predicting unknown attributes relating to a user*.

Applicants' claimed invention relates to a system and methodology that improve upon both memory-based and model-based collaborative filtering techniques utilized by conventional systems/methodologies. The subject invention improves upon the aforementioned techniques by utilizing a *personality type* in connection with *predicting unknown attributes relating to a user*. These predictions can be generated by way of *calculating probabilities that a user has a personality type substantially similar to personality types of a plurality of disparate users*. Specifically, as described in the specification, a user's reported attribute values can be interpreted as a manifestation of

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their underlying *personality type*. More particularly, a *personality type* of a user is explicitly defined in the specification as a vector of the user's "true" values for attributes in a database, where "true" values are obtained by assuming that users report values with a distributed error. (*See* p. 15, lines 10-17). For example, a same user may report different ratings with respect to a single item on different occasions (*e.g.*, depending upon user mood when rating the item). (*See* p. 24, line 24 - p. 25, line 14).

The Examiner, in the Final Office Action, contends that Robinson teaches the claimed *personality type generator that... calculates probabilities that the user has a personality type substantially similar to personality types of a plurality of disparate users*. In contrast to the claimed invention, however, Robinson teaches comparing ratings of items of an active user with previously obtained ratings of items of a plurality of disparate users to generate a prediction and/or provide the active user with a recommendation, and nowhere discloses utilization of a *personality type* in connection with predicting unknown attributes relating to a user. Specifically, Robinson discloses determining a similarity level between a first user and one or more disparate users, and providing a recommendation for an item as a function of the determined similarity level. (*See* col. 2, lines 31-34). Robinson further contemplates effects of a random user in connection with determining a level of similarity between a user and one or more different users. For example, there is evidence of two disparate users having similar taste in connection with all movies if both of such users provide a favorable rating with respect to one movie (and the users have not both provided rankings to other movies). If, however, a vast majority of all users also provided a favorable ranking to the movie, there is less evidence that the pair of users has similar taste with respect to all movies. Thus, Robinson teaches a system that compares ratings of items of an active user with previously obtained ratings of items of a plurality of disparate users in light of a probability that a random user would select substantially similar ratings. Robinson, however, does not disclose utilizing *personality types* as claimed (and defined in the specification) to generate predictive values for unknown attributes. The Examiner is reminded that the subject claims are to be interpreted in light of the specification, and that applicants can be their own lexicographer.

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> It is black letter law that a patentee can choose to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term that could differ in scope from that which would be afforded by its ordinary meaning. *The specification acts as a dictionary when it expressly defines terms used in the claims* or when it defines terms by implication. Where the patentee has clearly defined a claim term, that definition usually is dispositive; it is the single best guide to the meaning of a disputed term. *Guttman, Inc. v. Kopykake Enters.*, 302 F.3d 1352 (Fed. Cir. 2002) (citations omitted) (emphasis added).

As described above, a *personality type* is explicitly defined as a vector of the user's "true" values for attributes in a database, where "true" values are obtained by assuming that users report values with a distributed error. (*See* p. 15, lines 10-17). Robinson does not consider that a user can alter attributes depending on context (*e.g.*, time of day, current mood of the user, ...), and nowhere discloses contemplating that users report values with distributed error. Therefore, Robinson cannot disclose that any "true" values with respect to a user are obtained, and further cannot disclose a *personality type*, much less a *personality type* utilized in connection with *predicting unknown attributes*. On this basis alone, the subject rejection with respect to claims 1 and 48 (and all claims dependent therefrom) should be withdrawn.

Regarding claim 58, such claim is a means plus function claim under 35 U.S.C. §112 sixth paragraph, which states that a claim limitation expressed in means-plus function language "shall be construed to cover the corresponding structure... described in the specification and equivalents thereof." Claim 58 recites *means for calculating probabilities that an entity will act in a manner substantially similar to... disparate entities*, wherein the structure described in the specification is a personality type generator that calculates a probability that a user has a *personality type* that is substantially similar to personality types of disparate users. As described above, Robinson does not teach or suggest any sort of utilization of a *personality type* as defined in the specification, and further does not disclose any equivalents thereof. Accordingly, applicants' representative contends that the rejection with respect to claim 58 is improper, and that the subject rejection should be withdrawn with respect to this claim (and claim 59, which depends therefrom).

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With respect to dependent claims 30 and 50 (and all claims which depend therefrom), Robinson <u>nowhere</u> discloses *selectively requesting attributes from the user based upon a use of expected value of information*. As described in the specification, *expected value of information* is a decision-theoretic calculation that computes the value of obtaining particular attributes. For example, *expected value of information* can be employed to favorably order queries for attribute values, wherein the *expected value of information* is balanced with costs or difficulty of answering a question about preferences of a user. (*See* p. 15, line 26-page 16, line 1). Furthermore, *expected value of information* can be used to generate a number of most valuable questions to ask a user to limit a number of questions presented to such user (and/or a number of accesses to a database). (*See* p. 16, lines 1-6). Moreover, *expected value of information* can be employed to determine entries of a database to prune or ignore (*e.g.*, determine entries within a database that, if removed, would have minimal effect on accuracy recommendations). (*See* p. 16, lines 6-10).

In contrast to the subject invention as claimed, Robinson teaches a system that searches a data store for user(s) that have given a ranking to an item that has also been ranked by an active user. (*See* col. 6, lines 37-40). Upon locating these user(s), a similarity value with respect to the user(s) can be calculated, and a collection of user(s) most similar to the active user is utilized to generate predictions for such active user. It can be easily discerned from the above that Robinson does not contemplate any sort of calculation relating to an expectancy (*e.g.*, *an expected value of information*), but rather at most simply searches for users that have previously rated items also rated by an active user. Furthermore, the portion of Robinson cited by the Examiner with respect to claim 50 discloses providing a recommendation to a user, but clearly does not teach any form of request directed towards a user, much less *requesting attributes from the user based upon a use of expected value of information*. (*See* col. 2, lines 54-57).

In view of at least the above, it is readily apparent that Robinson does not disclose each and every element of independent claims 25, 48, and 58 (and claims 26, 28, 30-34, 36-40, 44, 46-47, 49-55, 57, and 59 which respectively depend therefrom). Accordingly, this rejection should be withdrawn.

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III. Rejection of Claims 35 and 56 Under 35 U.S.C. §103(a)

Claims 35 and 56 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Robinson in view of Knight, *et al.* (US 6,571,234). Withdrawal of this rejection is respectfully requested for at least the following reasons. Knight, *et al.* discloses a system that automatically classifies messages upon a message board and, like Robinson, does not disclose employing *a personality type* in connection with *predicting unknown attributes* as recited in independent claims 25 and 48. Therefore, Knight, *et al.* fails to make up for the aforementioned deficiencies of Robinson – accordingly, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

No fees are believed to be due. In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP
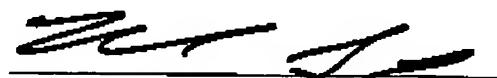
Himanshu S. Amin
Reg. No. 40,894

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731

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